

NR20
From: Niles Chokshi
To: Charles Cox; Jay Lee
Date: 05/22/2007 7:43:17 AM
Subject: Fwd: Re: SC Meeting Results

Dose threshold
paper

>>> Gary Holahan 05/21/2007 6:18 PM >>>

① detect

>>> Robert Prato 5/21/2007 6:09:42 PM >>>
To All

0.3 rem x 80

= 25 rem

I response to Jack's comments, the following changes were made:

In SECY-05-0233, entitled "Plan for Developing State-of-the Art Reactor Consequence Analyses," dated December 5, 2005, the staff initially proposed reporting latent health effects using a range of dose thresholds from 0 to 5 rem. At the direction of the interoffice SOAR-CA Steering Committee, consistent with the Commission's direction to present the results of these assessments using substantially improved risk communication techniques, the staff reviewed to possibility of identifying a best estimate point value that correspond to a dose threshold below which the risk of health effects is too small to observe. After considerable review, and as approved by the SOAR-CA Steering Committee, the staff is proposing to use a dose threshold of 5 rem in one year, 10 rem in a lifetime above that received from natural sources, consistent with the position statement of the Health Physics Society entitled "Radiation Risk in Perspective," adopted in January 1996, and revised in August 2004. Below these dose thresholds, the risk of health effects is too small to be observed.

For the purpose of regulatory requirements for radiation protection, latent cancers are treated as stochastic radiological effects: health effects that are random, without a threshold, and that the likelihood of occurrence increases with an increase in exposure. Therefore, for the purpose of protecting public health and safety the NRC uses the linear, no threshold model and assumes a zero dose threshold for the potential to induce latent cancer effects. Using a dose threshold of 5 rem as the threshold corresponding to the current state-of-the-art for detecting latent cancer effects is a significantly different concept that is not inconsistent with current Commission policy.

In SECY-05-0233 that describes the SOAR-CA process, the staff stated that the intent of the SOAR-CA project is to model the consequences realistically, using the best possible information and to present the results from these analyses using risk communication techniques to facilitate a common understanding amongst the stakeholders. Using a dose threshold consistent with the current state-of-the-art capability for observing latent cancer effects for reporting the consequences from a severe accident is the best approach to accomplish these objectives. This approach will provide a single result for each scenario analyzed at each site that will facilitate a common understanding among the stakeholders. Using a range of dose thresholds would produce multiple results for each scenario analyzed and leave the interpretation of those results to the reader. Therefore, the staff intends to go forward with the SOAR-CA using a single dose threshold below which the risk of health effects is too small to observe to report potential consequences estimated in the unlikely event of a severe accident.

Please note that the 10 rem in a lifetime was not removed, yet. I need to talk with HP to see if removing that criteria would be appropriate. We know that MACCS can combine the 5 and 10 rem thresholds and still get a single results. I just want to pulse key individuals to see if it is OK to do.

Bob

9/23

>>> John Grobe 5/21/2007 4:44 PM >>>
See comments in red below

>>> Robert Prato 05/21/2007 4:01 PM >>>
To All

Based on today's SC meeting, we are proposing to include these words in the project plan to address the single dose threshold approach decided in the meeting. I was asked to send these words to the SC members for your information. If you have comments, please get back to me as soon as you can because this paper is due to the Commission by 6/1, to EDO by Thursday, to the Office director, by tomorrow.

In SECY-05-0233, entitled Plan for Developing State-of-the Art Reactor Consequence Analyses, dated December 5, 2005, the staff initially proposed reporting latent health effects using a range of dose thresholds from 0 to 5 rem. At the direction of the interoffice SOAR-CA Steering Committee, consistent with the Commissions direction to present the results of these assessments using substantially improved risk communication techniques, the staff reviewed to possibility of identifying a best estimate point value that correspond to a dose threshold below which the risks of health effects are too small to observe. After considerable review and as approved by the SOAR-CA Steering Committee, the staff is proposing to use a dose threshold of 5 rem in one year, 10 rem in a lifetime I would not include the 10 rem stuff since lifetime dose is not relevant to this issue above that received from natural sources, consistent with the position statement of the Health Physics Society entitled Radiation Risk in Perspective, adopted in January 1996, and revised in August 2004. Below these dose thresholds, the risk of health effects is too small to be observed (refer to Attachment 1 for the staff evaluation and supporting documentation). I'm not sure what Attachment 1 is ... I thought we were going to put our evaluation and basis in a separate memorandum This approach will provide a single result for each scenario analyzed at each site that will facilitate a common understanding among the stakeholders based on a technically justifiable dose threshold for detecting latent cancer fatalities. This point value will replace a range of dose thresholds that would produce multiple results for each scenario analyzed and leave the interpretation of these results to the reader. This approach will provide clearer, more direct results to communicate to SOAR-CA stakeholders. I think we should provide a little more emphasis on the difference between induced microscopic effects and detectable health effects

Thank You,

Bob